NB6 Series Quality of Service (QoS) Setup

(NB6Plus4, NB6Plus4W Rev1)

NetComm®
Broadband Solutions

NB6 Series and Quality of Service (QoS)

The following Quality of Service (QoS) settings offer a basic setup example, setting up 3 devices connecting to an NB6Plus4 router, the first with the highest priority QoS priority data traffic for a VoIP ATA, the second with medium priority QoS priority data traffic flow for a gaming console and the third with low priority QoS priority data traffic flow. All other data packet traffic through the router assumes a default best effort setting.

Quality of Service refers to the reservation of bandwidth resources on the Nb6 Series router to provide different priorities to different applications, users, or data flows, or to guarantee a certain level of performance to a data flow.

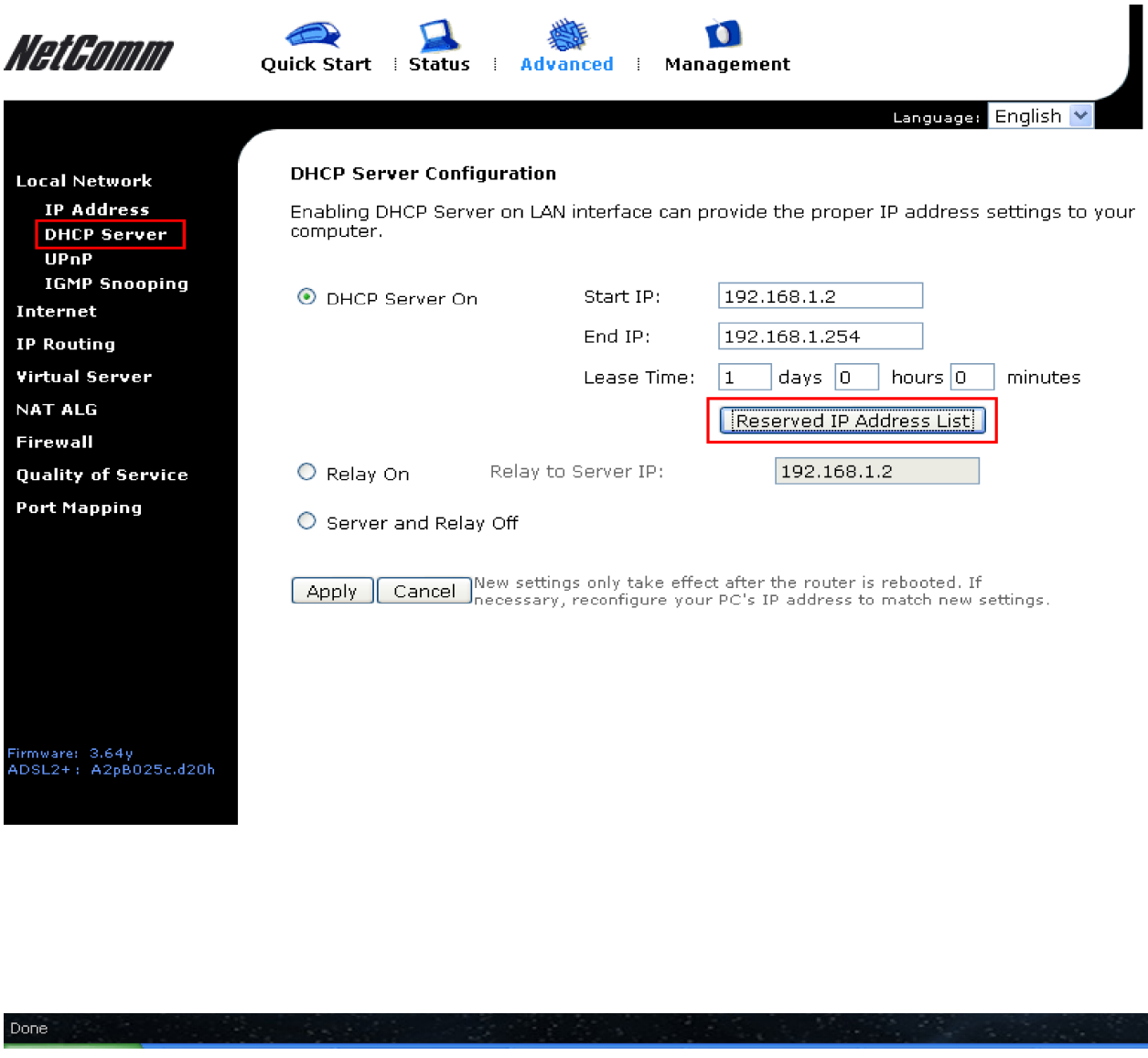
In this implementation Quality of Service employs DSCP – Differentiated Services Code Point – a computer networking architecture that specifies a simple, scalable and coarse-grained mechanism for classifying, managing network traffic.

This example guide sets up QoS with three devices (VoIP ATA, gaming console and PC) connecting via ethernet cable to an NB6 series router. One device (VoIP ATA) is assigned the highest priority traffic while the second device (gaming console) is assigned a medium priority while the third device (PC) is assigned a low best effort priority. Before Quality of Service can be implemented the first step involves reserving an IP address for each device linking the MAC address of each device to each IP address as shown in step one.

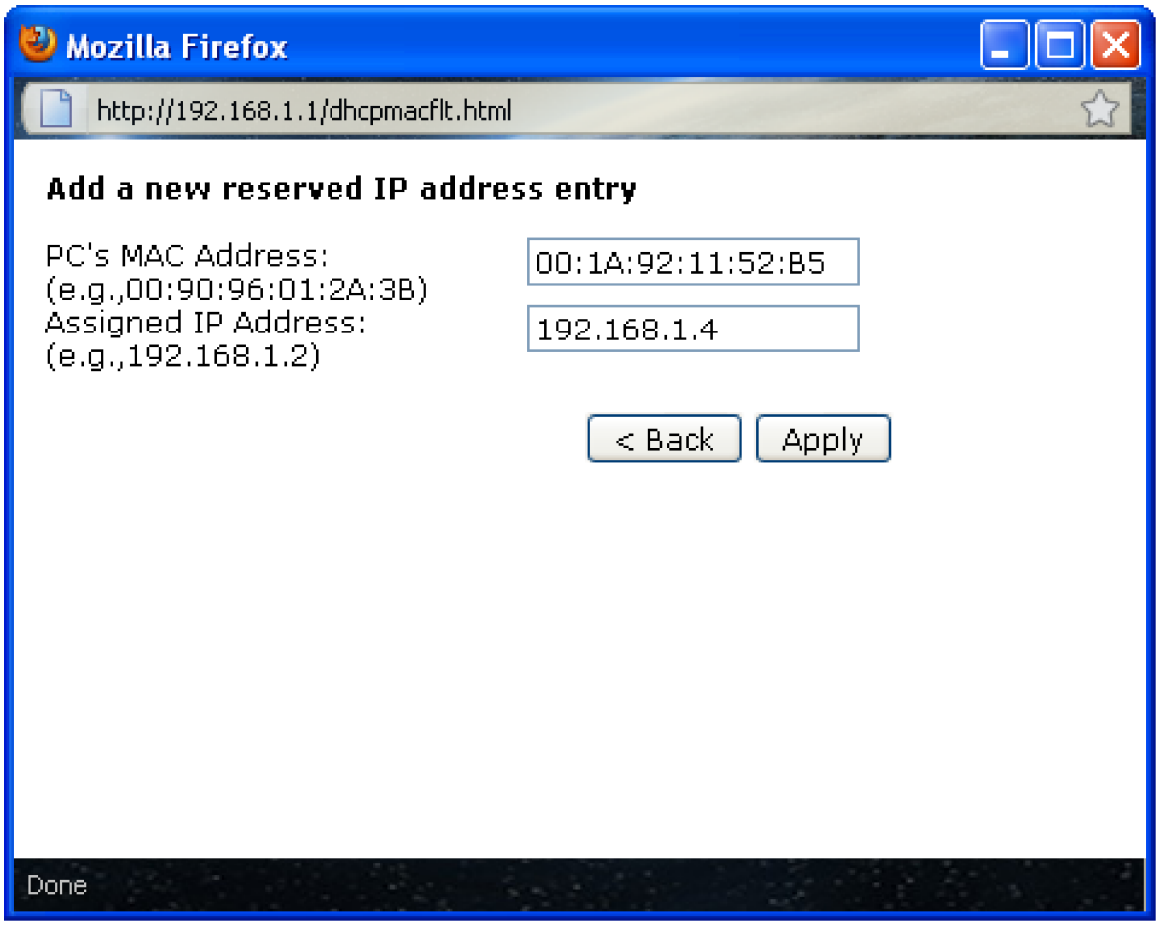
Quality of Service (QoS) Setup: Part 1 Reserve IP addresses

It is necessary to reserve an IP address for a device that is connecting to the NB6 Series router so that the QoS settings can manage each device and set data packet traffic priority by MAC and IP address.

1. Navigate to http://192.168.1.1 in a web browser.
2. Enter 'admin' (without quotes) for both the username and password and click Ok.
3. Select **Advanced** > **Local Network** > **DHCP Server**.



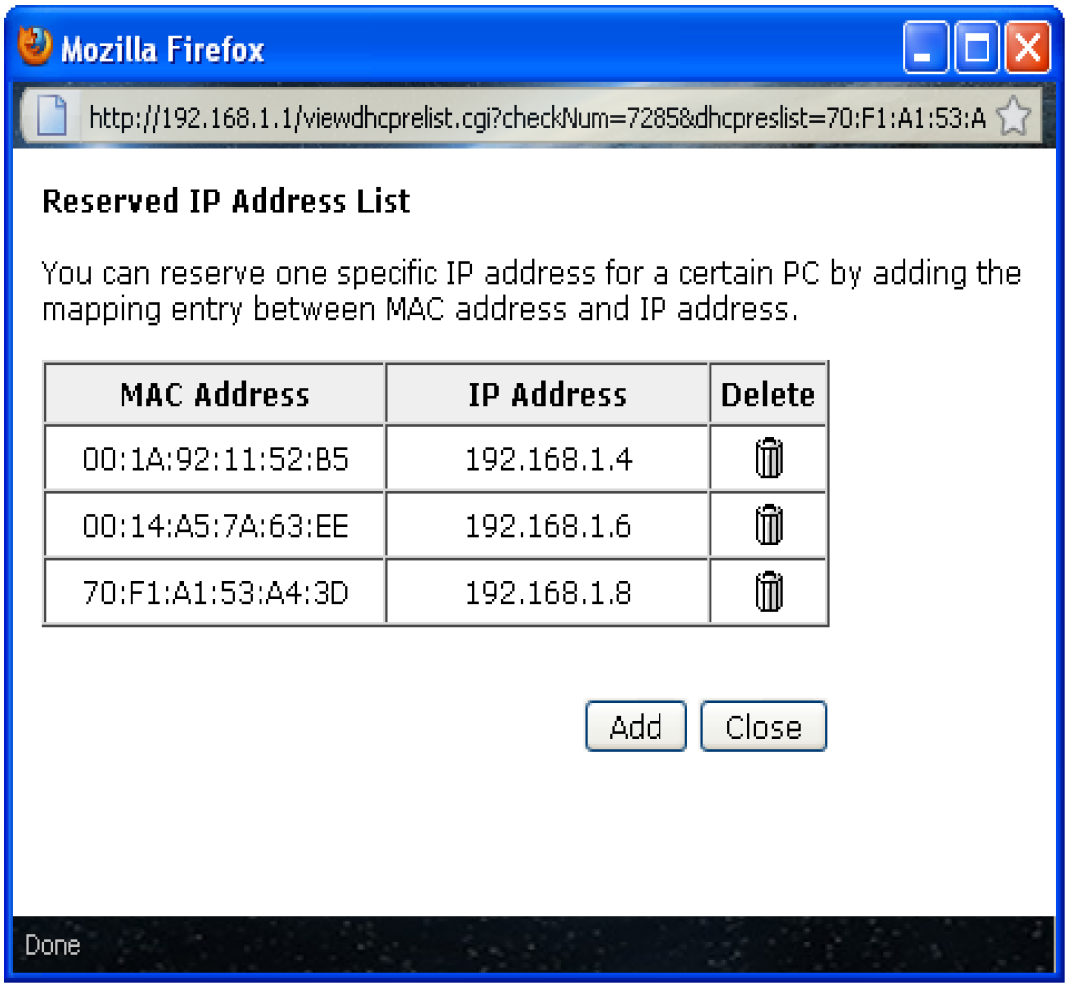
4. Press the **Reserved IP Address List.**



5. Enter the MAC address of the device/PC and the local IP address you wish to reserve for that device. The IP address will be in the range of 192.168.1.x where x is 2 – 254.

6. Press the Apply Button.

7. Complete steps 4 -6 to reserve an IP address for all the devices you wish to employ QoS with.

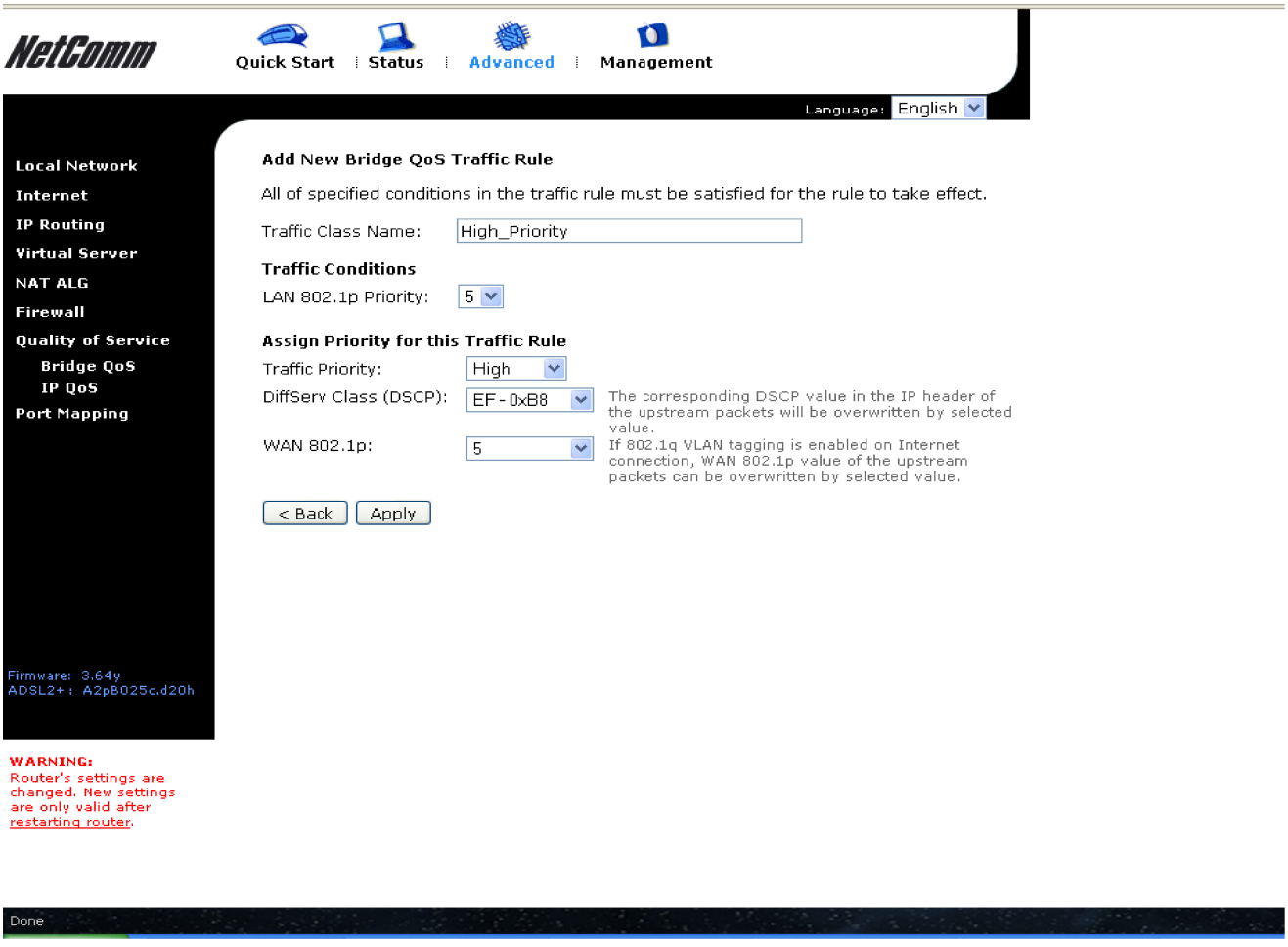


Quality of Service (QoS) Setup: Part 2 Bridge QoS Settings

The following guide shows how to setup 3 devices with QoS to an NB6 Series router, one with high priority QoS settings, one with medium priority QoS settings one with low priority QoS settings.

1. Select **Advanced** > **Quality of Service** > **Bridge QoS**.

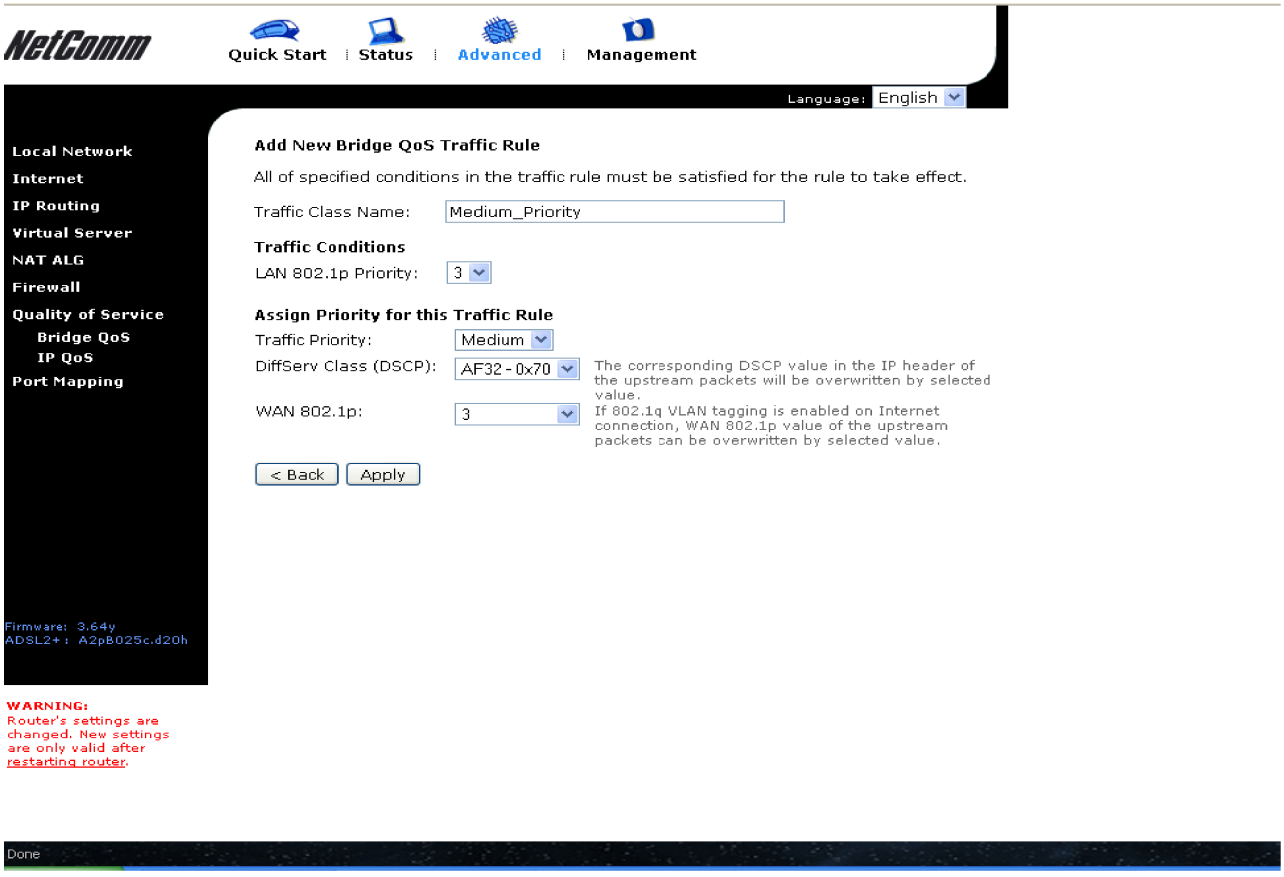
2. Press the **Add** button.



3. Enter a **Traffic Class Name** as **High_Priority**.
4. Enter the **LAN 802.1p Priority** as **5**.
5. Set the **Traffic Priority** as **High**.
6. Set the **Differentiated Service Code Point (DSCP)** as **EF – 0xB8.** EF stands for Expedited Forwarding.
7. Set the **WAN 802.1p** as **5** and press **Apply**.

8. Select **Advanced** > **Quality of Service** > **Bridge QoS**.

9. Press the **Add** button.



10. Enter the **Traffic Class Name** as **Medium_Priority**.

11. Set the **LAN 802.1p Priority** as **3**.

12. Enter the **Traffic Priority** as **Medium**.

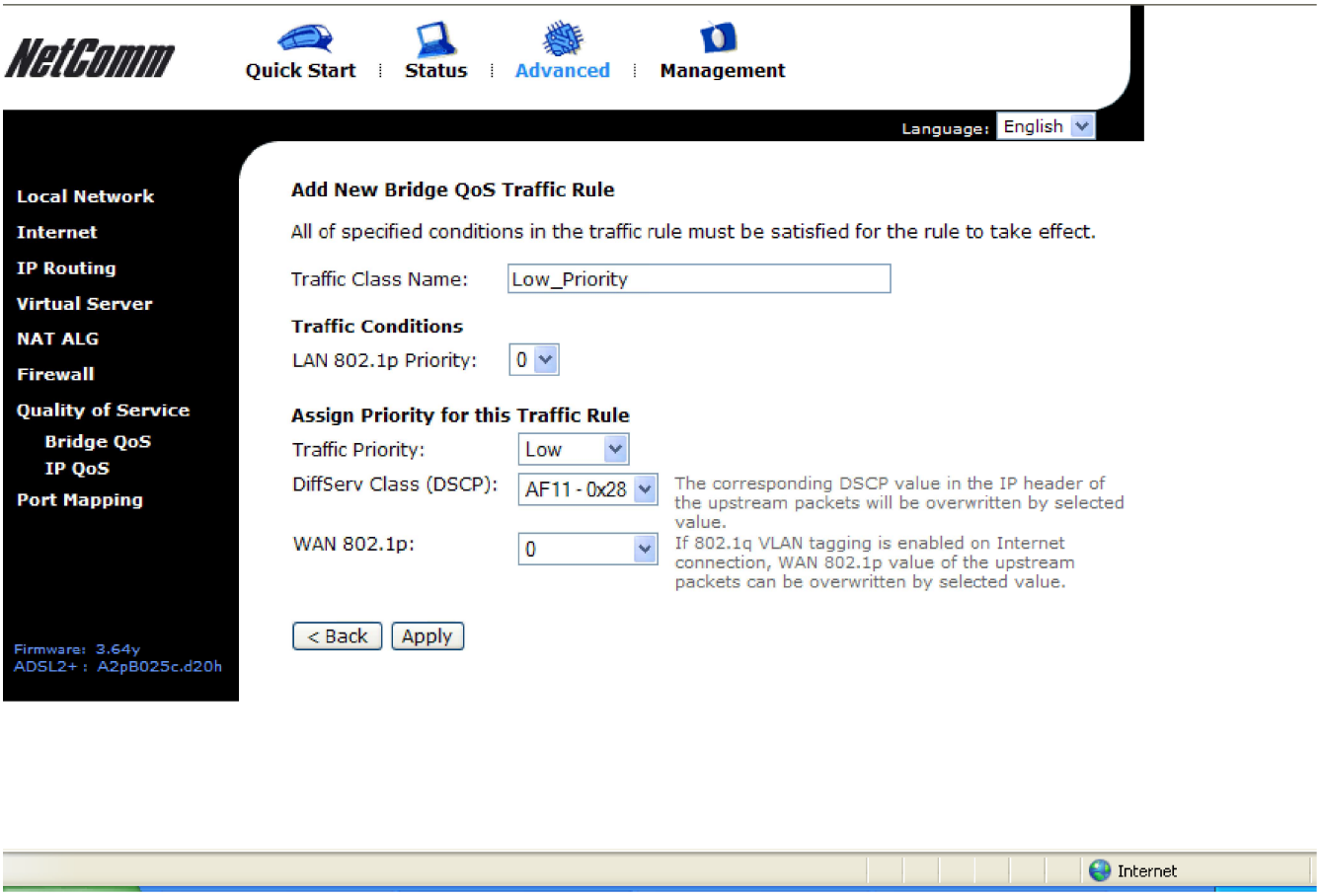
13. Set the **Differentiated Service Code Point (DSCP)** as **AF32 – 0x70.** AF stands for Assured Forwarding.

14. Set the **WAN 802.1p** as **3.**

15. Press **Apply.**

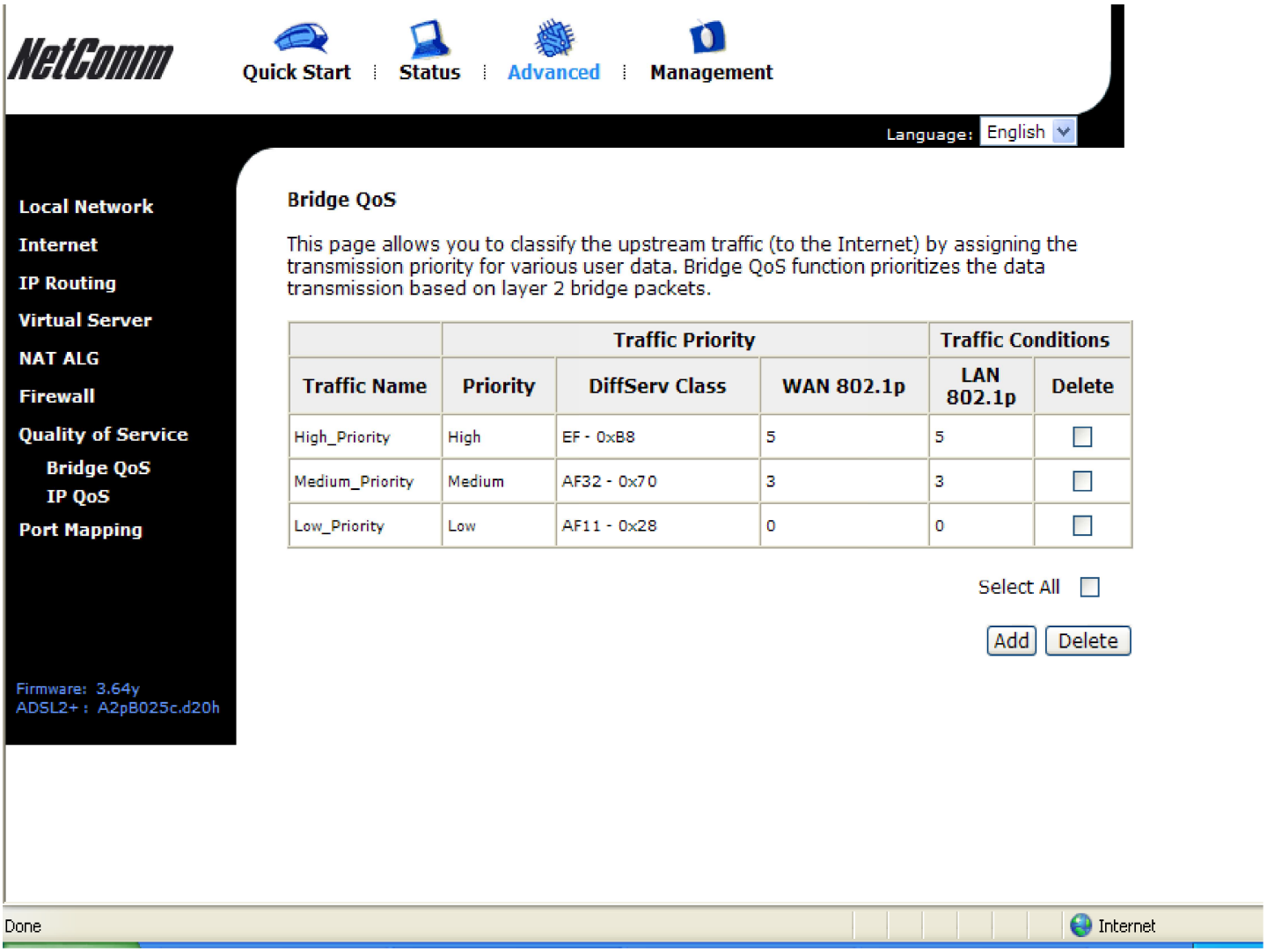
16. Select **Advanced** > **Quality of Service** > **Bridge QoS**.

17. Press the **Add** button.



18. Enter the **Traffic Class Name** as **Low_Priority**.
19. Set the **LAN 802.1p Priority** as **0**.
20. Set the **Traffic Priority** as **Low**.
21. Set the **Differentiated Service Code Point (DSCP)** as **AF11 – 0x38.**
22. Set the **WAN 802.1p** as 0.
23. Press **Apply**.

24. You should now have 3 Bridge QoS entries as shown in the screenshot below.

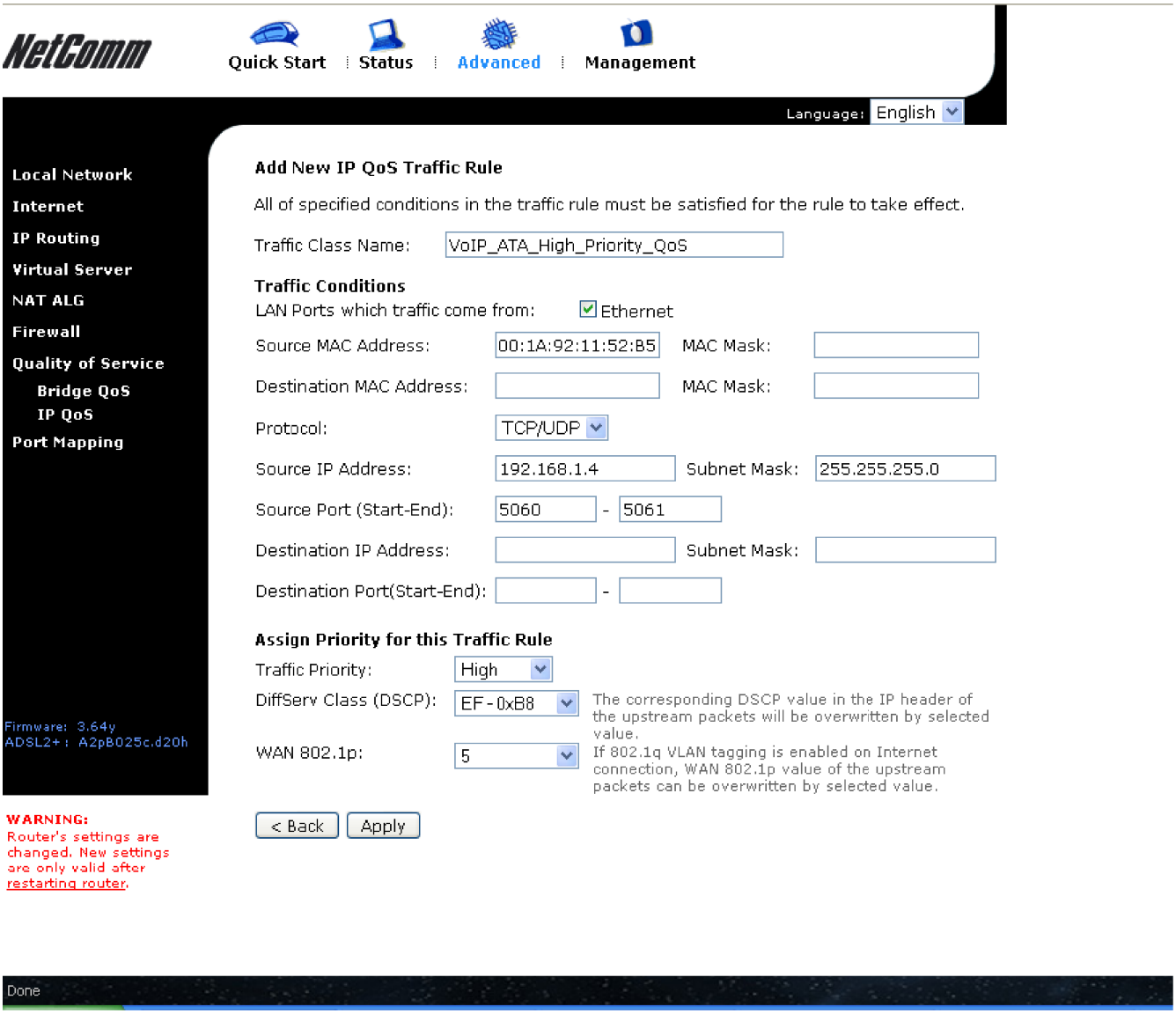


Quality of Service (QoS) Setup: Part 3 IP QoS Settings

The following guide is an example only. The following example gives QoS settings for three devices, one a VoIP ATA with High Priority QoS settings, one a gaming console with Medium Priority QoS settings and one a PC with Low Priority QoS settings.

1. Select **Advanced** > **Quality of Service** > **IP QoS**.

2. Press the **Add** button.



High Priority QoS Device Settings

3. Enter a **Traffic Class Name** to reflect the high Priority such as **VoIP_ATA_High_Priority_QoS**.

4. Select the **LAN Ports which traffic come from** as **Ethernet**

5. Enter the **Source MAC address** of the device you are connecting to the NB6 Series router. Enter the 12 character MAC address with a colon (:) between every two characters. In the example above the MAC address is **00:1A:92:11:52:B5**.

6. Enter the **Source MAC Mask** if you know it. If not leave this field blank.

7. Enter the **Destination MAC Address** if the destination is to a single device. If you require the Destination MAC address to be any device or MAC address leave this field blank.

8. Enter the **Destination MAC Mask** of the destination MAC address if required.

9. Enter the default **Protocol** as TCP/UDP if you are unsure of which protocol to use. Other options include TCP, UDP and ICMP.

10. Enter the **Source IP address** being the local IP address assigned to the device. In this example the high priority device is assigned 192.168.1.4.

11. Enter the **Source Subnet Mask** as 255.255.255.0.

12. Enter the **Destination IP address** if the address is for a single server or subnet**.** If you require the destination address to be any address leave the field blank.

13. Enter the **Destination Subnet Mask** if you have entered a Destination IP address. If not leave this field blank.

14. Enter the **Destination Port Start** - **End** port(s). If the port number is a single port number enter the same port number in both fields.

15. Set the **Traffic Priority** to High.

16. Set the **Differentiated Service Code Point (DSCP)** to **EF – 0xB8**.

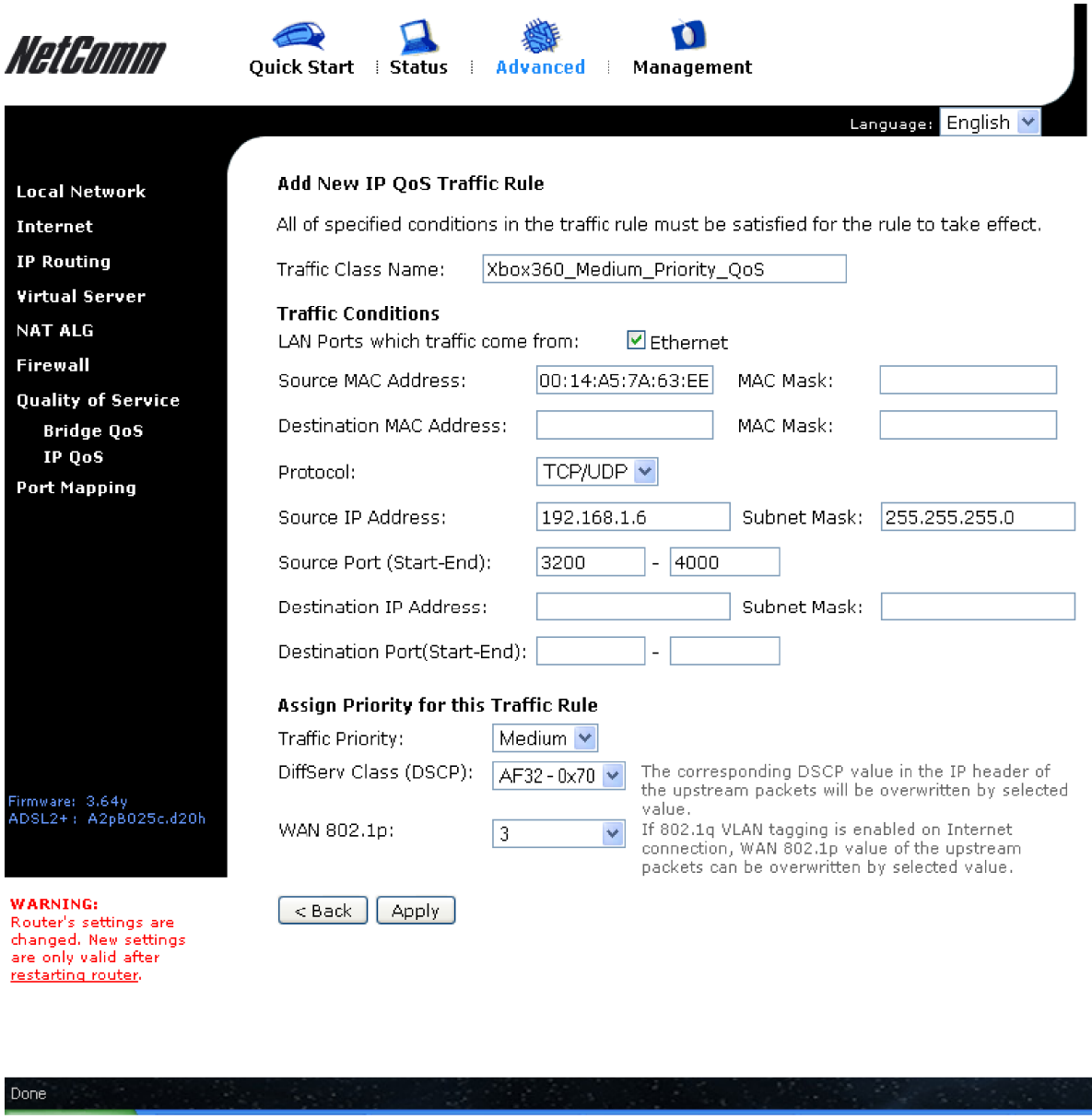
17. Set the **WAN 802.1p** to 5.

18. Press **Apply**.

Medium Priority QoS Device Settings

19. Select **Advanced** > **Quality of Service** > **IP QoS**.

20. Press the **Add** button.



1. Enter a **Traffic Class Name** for the medium priority device, in this example it is named Xbox360_Medium_Priority_QoS.

2. Select the **LAN Ports which traffic come from** as **Ethernet.**

3. Enter the **Source MAC address** of the device you are connecting to the NB6 Series router. Enter the 12 character MAC address with a colon (:) between every two characters. In the example above the MAC address is **00:14:A5:7A:63:EE**.

4. Enter the **Source MAC Mask** if required. If not required or if you are unsure leave this field blank.

5. Enter the **Destination MAC Address** if the destination is to a single device. If you require the Destination MAC address to be any device or MAC address leave this field blank.

6. Enter the **Destination MAC Mask** of the destination MAC address if required. If not required or if you are unsure leave this field blank.

7. Enter the default P**rotocol** as TCP/UDP if you are unsure of which protocol to use. Other options include TCP, UDP and ICMP.

8. Enter the **Source IP address** being the local IP address assigned to the device. In this example the medium priority device is assigned 192.168.1.6.

9. Enter the **Source Subnet Mask** as 255.255.255.0.

10. Enter the **Destination IP address** if the address is for a single server or subnet**.** If you require the destination address to be any address leave the field blank.

11. Enter the **Destination Subnet Mask** if you have entered a Destination IP address. If not leave this field blank.

12. Enter the **Destination Port Start** - **End** port(s). If the port number is a single port number enter the same port number in both fields.

13. Set the **Traffic Priority** to Medium.

14. Set the **Differentiated Service Code Point (DSCP)** to **AF32 – 0x70**.

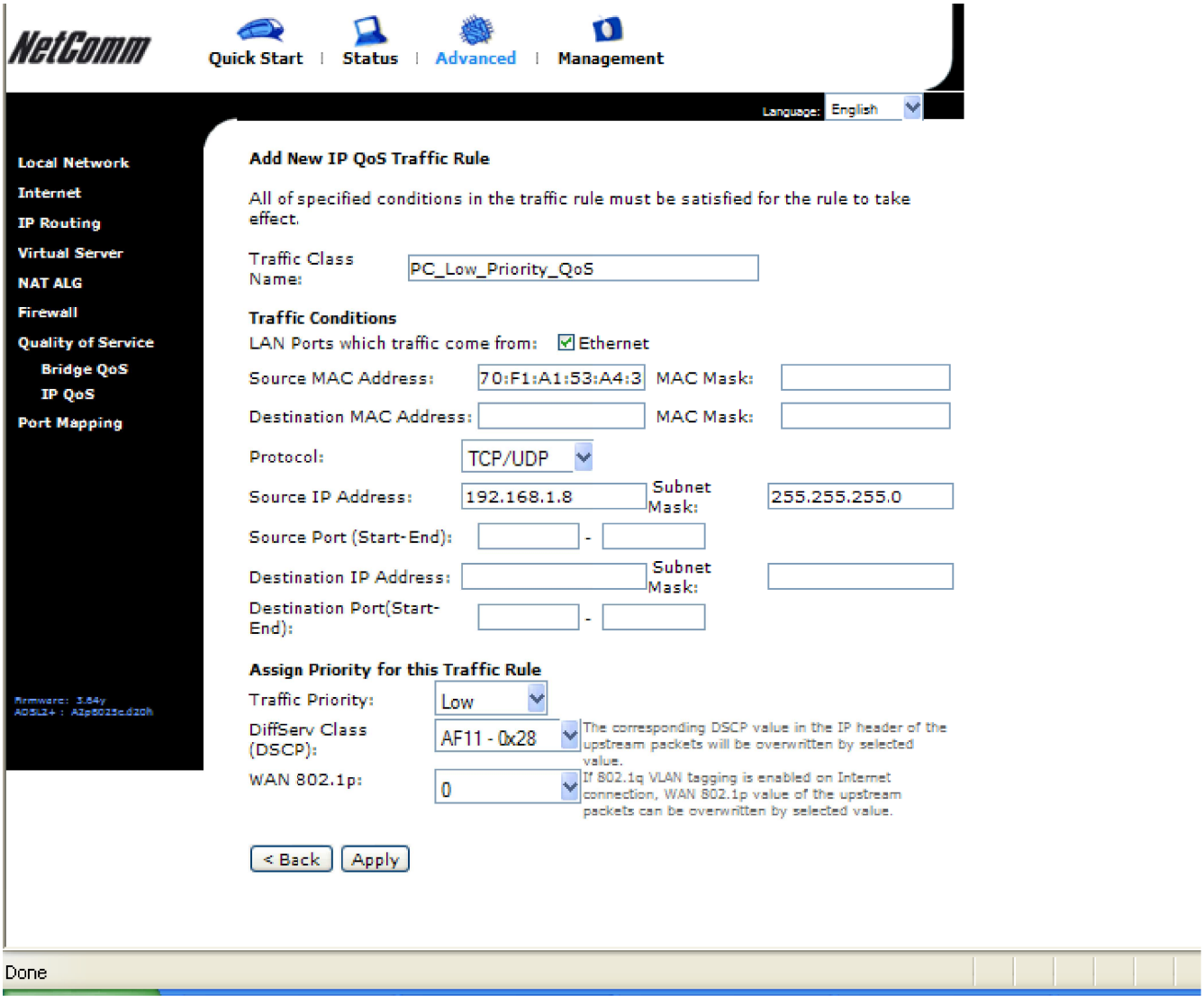
15. Set the **WAN 802.1p** to 3.

16. Press **Apply**.

Low Priority QoS Device Settings

17. Select **Advanced** > **Quality of Service** > **IP QoS**.

18. Press the **Add** button.



19. Enter a **Traffic Class Name** for the medium priority device, in this example it is named PC_Low_Priority_QoS.

20. Select the **LAN Ports which traffic come from** as **Ethernet.**

21. Enter the **Source MAC address** of the device you are connecting to the NB6 Series router. Enter the 12 character MAC address with a colon (:) between every two characters. In the example above the MAC address is **70:F1:A1:53:A4:3D**

22. Enter the **Source MAC Mask** if required. If not required or if you are unsure leave this field blank.

23. Enter the **Destination MAC Address** if the destination is to a single device. If you require the Destination MAC address to be any device or MAC address leave this field blank.

24. Enter the **Destination MAC Mask** of the destination MAC address if required. If not required or if you are unsure leave this field blank.

25. Enter the default P**rotocol** as **TCP/UDP** if you are unsure of which protocol to use. Other options include TCP, UDP and ICMP.

26. Enter the **Source IP address** being the local IP address assigned to the device. In this example the low priority device is assigned **192.168.1.8**.

27. Enter the **Source Subnet Mask** as **255.255.255.0**.

28. Enter the **Destination IP address** if the address is for a single server or subnet**.** If you require the destination address to be any address leave the field blank.

29. Enter the **Destination Subnet Mask** if you have entered a Destination IP address. If not leave this field blank.

30. Enter the **Destination Port Start** - **End** port(s). If the port number is a single port number enter the same port number in both fields.

31. Set the **Traffic Priority** to Medium.

32. Set the **Differentiated Service Code Point (DSCP)** to **AF11– 0x38**.

33. Set the **WAN 802.1p** to 0.

34. Press **Apply**.

IP QoS Summary

The IP QoS page should resemble the screenshot below with each QoS rule added for each device connecting to the NBPlus4, set with priority High, Medium and Low.

35. Select Management > Reset Router and press the reboot button to save the new QoS settings.